

WHAT IS CLAIMED IS:

1. An image collecting system for collecting an image having a target character therein, comprising:

a camera system that captures an image in which the target character is caught in a predetermined area;

an image database that stores images captured by said camera system;

a character information database that stores character information for identifying a person caught in an image as the target character;

a character positioning unit for obtaining position information of the target character at a certain time; and

an image collecting unit that connects to said image database and said character information database to identify images stored in said image database with the target character therein based on the character information stored in said character information database and the position information of the target character obtained by said character positioning unit, and collect images in which the target character is caught from the images stored in said image database.

2. The image collecting system as claimed in claim 1, further comprising:

an image transmitter that connects to said camera system, said image database storing said images transmitted by said image transmitter;

a position transmitter that transmits signals having said position information of the target character; and

a receiver, located remote from said position transmitter, that receives said signals from said position transmitter, said receiver being operably connected to said character positioning unit.

3. The image collecting system as claimed in claim 1, further comprising:

an ID information holder to be carried by the target character, the ID information holder having ID information that uniquely identifies the target character; and

an ID information reader for reading the ID information from said ID information holder,

wherein said character positioning unit obtains the position information of the target character based on the ID information read by said ID information reader.

4. The image collecting system as claimed in claim 1, wherein:

when the target character is among a plurality of persons that are caught in a plurality of images,

the position information of each person of the plurality of persons includes relative position information of said each person with respect to the plurality of persons, and

each person of the plurality of persons is identified in one of said plurality of images and said target character from said plurality of persons is identified in all of said plurality of images,

said image collecting unit identifies the rest of the plurality of persons in the rest of the plurality of images based on said relative position information of said each person.

5. The image collecting system as claimed in claim 1, wherein:

said camera system includes a camera group having a plurality of cameras which capture a plurality of images in which a same person is caught from a plurality of different angles, and

when a person in one of the plurality of images, which is caught by a camera included in said camera group, is identified as the target character,

said image collecting unit identifies the same person in the rest of the plurality of images captured by the rest of the

cameras included in said camera group as the target character, without accessing said character information database repeatedly.

6. The image collecting system as claimed in claim 1, wherein:
said camera system includes a camera group having at least one camera which captures a plurality of images in which a same person is caught at sequentially different moments,

when said same person is identified as the target character in one of the plurality of images caught by said at least one camera in said camera group,

said image collecting unit identifies the same person in the rest of the plurality of images as the target character, without accessing said character information database repeatedly.

7. The image collecting system as claimed in claim 1, wherein:
said character positioning unit obtains the position information of the target character which includes information that the target character passes a first predetermined point at a certain first time, and

said image collecting unit limits images to identify the target character to images that are captured in a moving range of the target character for a period of time based on said first time the target character passes said first predetermined point.

8. The image collecting system as claimed in claim 7, wherein:
said character positioning unit obtains further position information of the target character which includes information that the target character passes a second predetermined point at a second time different from said first time, and

said image collecting unit limits said images to identify the target character to images that are captured in said moving range for said period based on the first time and the second time

that the target character passes said first and second predetermined points, respectively.

9. The image collecting system as claimed in claim 7, wherein:
said camera system includes a plurality of cameras operable to capture images in a predetermined route,

said character positioning unit obtains said position information including information that the target character passes said first predetermined point on said predetermined route at said first time, and

said image collecting unit limits said images to identify the target character to images that are captured in said moving range based on said time the target character passes said first predetermined point on said predetermined route.

10. The image collecting system as claimed in claim 9, wherein:
said character positioning unit obtains further position information of the target character which includes information that the target character passes a second predetermined point in said predetermined route at a second time different from said first time, and

said image collecting unit limits said images to identify the target character to images that are captured in said moving range based on the first time and the second time the target character passes said first and second predetermined points, respectively, in said predetermined route.

11. The image collecting system as claimed in claim 1, further comprising:

a character speed obtaining unit that detects a speed of the target character, while moving through a predetermined route, at a certain moment at a predetermined point in said predetermined route; and

a character position forecasting unit that forecasts a

position of the target character after a predetermined time from said certain moment based on said speed of the target character going through said predetermined route and the position information of the target character at said moment the target character passes said predetermined point,

wherein said camera system includes a plurality of cameras which capture images in said predetermined route, and

said image collecting unit limits images to identify the target character to images that are captured by a camera included in said plurality of cameras and provided at said position forecast by said character position forecasting unit.

12. An image screening system that effectively accumulates data of images in which a certain target character is caught into an image database, comprising:

a camera system that captures an image having the target character therein in a predetermined area, and that records a time and place the image is captured;

an image transmitter that operably connects to said camera system;

a character information database that stores character information for identifying a person caught in an image as the target character;

a character positioning unit for obtaining position information of the target character at a certain time;

an image screening unit for identifying a person caught in said image as the target character based on the time and place the image is captured, the character information stored in said character information database, and position information of the target character obtained by said character positioning unit, and for selecting said image having the target character therein from images captured by said camera system and transmitted by said image transmitter; and

an image database that connects to said image screening

unit and stores data of the selected image having the target character therein.

13. The image screening system as claimed in claim 12, further comprising:

a position transmitter for being carried by the target character; and

a receiver that is located remote from said position transmitter to receive signals from said position transmitter, said receiver being operably connected to said character positioning unit.

14. The image screening system as claimed in claim 12, further comprising:

an ID information holder to be carried by the target character, the ID information holder having ID information that uniquely identifies the target character; and

an ID information reader for reading the ID information from said ID information holder,

wherein said character positioning unit obtains the position information of the target character based on the ID information read by said ID information reader.

15. The image screening system as claimed in claim 12, wherein:

when the target character is among a plurality of persons that are caught in a plurality of images,

the position information of each person of the plurality of persons includes relative position information of said each person with respect to the plurality of persons, and

each person of the plurality of persons is identified in one of said plurality of images and said target character from said plurality of persons is identified in all of said plurality of images,

said image collecting unit identifies the rest of the

plurality of persons in the rest of the plurality of images based on said relative position information of said each person.

16. The image screening system as claimed in claim 12, wherein:

said camera system includes a camera group having a plurality of cameras which capture a plurality of images in which a same person is caught from a plurality of different angles, and

when a person in one of the plurality of images, which is caught by a camera included in said camera group, is identified as the target character,

said image screening unit identifies the same person in the rest of the plurality of images captured by the rest of the cameras included in said camera group as the target character, without accessing said character information database repeatedly.

17. The image screening system as claimed in claim 12, wherein:

said camera system includes a camera group having at least one camera which captures a plurality of images in which a same person is caught at sequentially different moments,

when said same person is identified as the target character in one of the plurality of images caught by said at least one camera in said camera group,

said image screening unit identifies the same person in the rest of the plurality of images as the target character, without accessing said character information database repeatedly.

18. The image screening system as claimed in claim 12, wherein:

said character positioning unit obtains the position information of the target character which includes information that the target character passes a first predetermined point at a certain first time, and

said image screening unit limits images to identify the target character to images that are captured in a moving range of the target character for a period of time based on said first

time the target character passes said first predetermined point.

19. The image screening system as claimed in claim 18, wherein:
said character positioning unit obtains further position information of the target character which includes information that the target character passes a second predetermined point at a second time different from said first time, and

said image screening unit limits said images to identify the target character to images that are captured in said moving range for said period based on the first time and the second time that the target character passes said first and second predetermined points, respectively.

20. The image screening system as claimed in claim 19, wherein:
said camera system includes a plurality of cameras operable to capture images in a predetermined route,

said character positioning unit obtains said position information including information that the target character passes said first predetermined point on said predetermined route at said first time, and

said image screening unit limits said images to identify the target character to images that are captured in said moving range based on said time the target character passes said first predetermined point on said predetermined route.

21. The image screening system as claimed in claim 18, wherein:
said character positioning unit obtains further position information of the target character which includes information that the target character passes a second predetermined point in said predetermined route at a second time different from said first time, and

said image screening unit limits said images to identify the target character to images that are captured in said moving range based on the first time and the second time the target

character passes said first and second predetermined points, respectively, in said predetermined route.

22. The image screening system as claimed in claim 12, further comprising:

a character speed obtaining unit that detects a speed of the target character, while moving through a predetermined route, at a certain moment at a predetermined point in said predetermined route; and

a character position forecasting unit that forecasts a position of the target character after a predetermined time from said certain moment based on said speed of the target character going through said predetermined route and the position information of the target character at said moment the target character passes said predetermined point,

wherein said camera system includes a plurality of cameras which capture images in said predetermined route, and

said image screening unit limits images to identify the target character to images that are captured by a camera included in said plurality of cameras and provided at said position forecast by said character position forecasting unit.

23. A method for collecting an image having a target character therein in a predetermined area, comprising:

registering character information of the target character;
capturing images in which the target character is caught
and recording a time and place each image is captured;

storing image data of the captured images;

obtaining position information of the target character;

identifying a person in each of the images thus stored as the target character based on at least one of the character information thus registered, the time and place that said each image is captured, and the position information of the target character when said each image is captured obtained by the

obtaining of position information; and

collecting images in which the target character is identified.

24. The method for collecting an image as claimed in claim 23, further comprising:

transmitting position signals for the target character in said predetermined area from a transmitter carried by the target character, and

receiving position signals of the target character that are transmitted by the transmitting of position signals,

wherein the position information of the target character is obtained based on the received position signals of the target character.

25. The method for collecting an image as claimed in claim 24, further comprising:

allocating character ID to substantially every person in said predetermined area,

wherein the character ID includes at least one of the character information and the position signals corresponding to said every person.

26. The method for collecting an image as claimed in claim 23, wherein:

when the target character is among a plurality of persons that are caught in a plurality of images,

the obtaining of position information obtains relative position information of each person with respect to the plurality of persons, and

the identifying of a person includes:

identifying each person of the plurality of persons in one of said plurality of images,

identifying said target character in all of said plurality

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of images, and

identifying the rest of the plurality of persons in the rest of the plurality of images based on said relative position information of said each person.

27. The method for collecting an image as claimed in claim 23, wherein:

the capturing images includes capturing a plurality of images in series in which a same person is caught, and

the identifying a person includes:

identifying a person in one of the plurality of images as the target character, and

identifying the same person in the rest of the plurality of images as the target character, without using the character information repeatedly.

28. The method for collecting an image as claimed in claim 27, wherein the capturing of a series of images includes capturing the plurality of images in series from a plurality of different angles.

29. The method for collecting an image as claimed in claim 27, wherein the capturing of a series of images includes capturing the plurality of images in series at sequentially different moments.

30. The method for collecting an image as claimed in claim 23, wherein:

the obtaining of position information includes detecting a first time that the target character passes a first predetermined point, and

the identifying a person includes limiting images to identify the target character to images that are captured in a moving range of the target character for a period of time based

on said first time the target character passes said first predetermined point.

31. The method for collecting an image as claimed in claim 30, wherein:

the obtaining of position information includes detecting a second time, different from said first time, that the target character passes a second predetermined point, and

the identifying a person includes limiting said images to identify the target character to images that are captured in said moving range for said period based on the first time and the second time that the target character passes said first and second predetermined points, respectively.

32. The method for collecting an image as claimed in claim 30, wherein:

capturing images includes capturing a plurality of images in a predetermined route,

the obtaining of position information includes detecting that the target character passes said first predetermined point on said predetermined route at said first time, and

the identifying a person includes limiting said images to identify the target character to images that are captured in said moving range based on said time the target character passes said first predetermined point on said predetermined route.

33. The method for collecting an image as claimed in claim 32, wherein:

the obtaining of position information includes detecting a second time, different from said first time, that the target character passes a second predetermined point in said predetermined route, and

the identifying a person includes limiting said images to identify the target character to images that are captured in said

moving range based on the first time and the second time the target character passes said first and second predetermined points, respectively, in said predetermined route.

34. The method for collecting an image as claimed in claim 23, further comprising:

detecting a speed of the target character, while moving through a predetermined route, at a certain moment at a predetermined point in said predetermined route; and

forecasting a position of the target character after a predetermined time from said certain moment based on said detected speed of the target character going through said predetermined route and obtained position information of the target character at said moment the target character passes said predetermined point,

wherein the capturing images includes capturing a plurality of images in said predetermined route, and

the identifying a person includes limiting images to identify the target character to images that are captured at said position in forecasting of a position.

35. A method for screening an image captured in a predetermined area, in order to store image data having a target character therein, the method comprising:

registering character information of the target character;

capturing images including at least one image with the target character therein, and recording a time and place each image is captured;

obtaining position information of the target character;

screening images thus captured for said at least one image with the target character, based on registered character information, recorded time and place said each image is captured, and position information of the target character when said at least one image with the target character is captured; and

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storing image data of the screened at least one image with the target character is caught.

36. The method for screening an image as claimed in claim 35, further comprising:

transmitting position signals of the target character in said predetermined area from a transmitter with the target character, and

receiving position signals of the target character that are transmitted by the transmitting of position signals, for obtaining position information of the target character therefrom.

37. The method for screening an image as claimed in claim 36, further comprising:

allocating character ID to at least the target character in said predetermined area,

wherein the character ID includes at least one of the character information and the position signals of the target character.

38. The method for screening an image as claimed in claim 35, wherein:

when the target character is among a plurality of persons that are caught in a plurality of images,

the obtaining of position information obtains relative position information of each person with respect to the plurality of persons, and

the screening of images includes:

identifying each person of the plurality of persons in one of said plurality of images,

identifying said target character in all of said plurality of images, and

identifying the rest of the plurality of persons in the rest

of the plurality of images based on said relative position information of said each person.

39. The method for screening an image as claimed in claim 35, wherein:

the capturing images includes capturing a plurality of images in series in which a same person is caught, and

the screening of images includes:

identifying a person in one of the plurality of images as the target character, and

identifying the same person in the rest of the plurality of images as the target character, without using the registered character information repeatedly.

40. The method for screening an image as claimed in claim 39, wherein the capturing of a series of images includes capturing the plurality of images in series from a plurality of different angles.

41. The method for screening an image as claimed in claim 39, wherein the capturing of a series of images includes capturing the plurality of images in series at sequentially different moments.

42. The method for screening an image as claimed in claim 35, wherein:

the obtaining of position information includes detecting a first time that the target character passes a first predetermined point, and

the screening of images includes limiting images to identify the target character to images that are captured in a moving range of the target character for a period of time based on said first time the target character passes said first predetermined point.

43. The method for screening an image as claimed in claim 42, wherein:

the obtaining of position information includes detecting a second time, different from said first time, that the target character passes a second predetermined point, and

the screening of images includes limiting said images to identify the target character to images that are captured in said moving range for said period based on the first time and the second time that the target character passes said first and second predetermined points, respectively.

44. The method for screening an image as claimed in claim 42, wherein:

capturing images includes capturing a plurality of images in a predetermined route,

the obtaining of position information includes detecting that the target character passes said first predetermined point on said predetermined route at said first time, and

the screening of images includes limiting said images to identify the target character to images that are captured in said moving range based on said first time the target character passes said first predetermined point on said predetermined route.

45. The method for screening an image as claimed in claim 44, wherein:

the obtaining of position information includes detecting a second time, different from said first time, that the target character passes a second predetermined point in said predetermined route, and

the screening of images includes limiting said images to identify the target character to images that are captured in said moving range based on the first time and the second time the target character passes said first and second predetermined points,

respectively, in said predetermined route.

46. The method for screening an image as claimed in claim 35, further comprising:

detecting a speed of the target character, while moving through a predetermined route, at a certain moment at a predetermined point in said predetermined route; and

forecasting a position of the target character after a predetermined time from said certain moment based on said detected speed of the target character going through said predetermined route and obtained position information of the target character at said moment the target character passes said predetermined point,

wherein the capturing images includes capturing a plurality of images in said predetermined route, and

the screening of images includes limiting images to identify the target character to images that are captured at said position in forecasting of a position.

47. An image identifying system for identifying a plurality of persons caught in a plurality of images, captured in a predetermined area, with at least one target character therein, the image identifying system comprising:

an image set database that stores a plurality of images; each image of said plurality of images having the plurality of persons therein with at least one target character comprises an image set in said image set database;

a character information database that stores character information for identifying a person in an image as the target character;

a character positioning unit for obtaining position information of the at least one target character and relative position information of each person with respect to the plurality of persons in the image set; and

an image identifying unit for identifying the plurality of persons in the image set,

wherein when said image identifying unit identifies substantially all of the plurality of persons in one image included in the image set, based on the character information of the at least one target character in said one image and the relative position information of each person in the plurality of persons, the plurality of persons in the rest of the images in the image set is identified.

48. The image identifying system as claimed as claim 47, wherein the image set comprises a plurality of images captured from a plurality of angles at substantially the same time.

49. The image identifying system as claimed as claim 47, wherein the image set comprises a plurality of images captured at sequentially different moments in a period of time while the relative position information of each person in the plurality of persons substantially does not change.

50. A method for identifying a plurality of a same set of persons having at least one target character, caught in a plurality of images which are captured in a predetermined area, the method comprising:

registering character information of each target character;

capturing the plurality of images with the same set of persons having at least one target character therein;

obtaining position information of each target character and relative position information of each person with respect to the same set of persons; and

identifying the plurality of the same set of persons in the plurality of images based on registered character information, captured images, and obtained position information,

wherein when said each person of the same set of persons is identified in one of the plurality of images and one person of the same set of persons is identified in the rest of the plurality of images, the rest of the same set of persons in the rest of the plurality of the images are identified based on the relative position information of said each person in the same set of persons.

51. The method for identifying a plurality of a same set of persons as claimed in claim 50, wherein the capturing of the plurality of images includes capturing images, with the same set of persons having at least one target character, at substantially the same time from a plurality of angles.

52. The method for identifying a plurality of a same set of persons as claimed in claim 50, wherein:

the relative position information of said each person in the same set of the persons substantially does not change, and

the capturing of the plurality of images includes capturing images, with the same set of persons having at least one target character, at sequentially different moments of time.

53. A server for collecting an image in which a certain target character is caught, comprising:

an image database storing image data, said image data including data of the image in which the target character is caught and data about when and where said image is captured;

a character information database storing character information of the target character for identifying a person caught in the image with the target character;

a character positioning unit obtaining position information of the target character; and

an image collecting unit, connecting to said image database, said character information database, and said character

positioning unit, for identifying the person caught in the image with the target character, and collecting the image in which the target character is caught from the image data stored in said image database,

wherein said image collecting unit identifies the person caught in the image stored in said image database with the target character based on said data about when and where said image is captured, the character information stored in said character information database, and position information of the target character when the image is captured obtained by said character positioning unit.

54. An image screening server for accumulating images, in which a person as a target character is caught, into an image database for effectively offering an image in which the target character is caught, comprising:

a character information database storing character information for identifying the person caught in the image with the target character;

a character positioning unit obtaining position information of the target character;

an image screening unit connecting to said character information database and said character positioning unit, and screening the images, when said images in which the target character is caught are sent with data about when and where the image is captured,

said image screening unit screening said images based on a time and place each of the images is captured, the position information of the target character when said each image is captured obtained by said character positioning unit, and the character information stored in said character information database; and

an image database storing screened images in which the target character is caught.

55. A recording medium which stores a program for a computer for collecting an image in which a target character is caught in a predetermined area, said program comprising:

a first communicating module, which operates the computer to communicate with an image database storing the image, when image data having a person as the target character therein is sent with data about when and where the image is captured;

a second communicating module, which operates the computer to communicate with a character information database storing character information for identifying a person caught in the image with the target character;

a third communicating module, which operates the computer to communicate with a character positioning device obtaining position information of the target character; and

an image collecting module, which operates the computer to connect to said first communicating module, said second communicating module, and said third communicating module, the image collecting module identifying the person caught in the images sent from said first communicating module with the target character based on the data about when and where the image is captured sent from said first communicating module, the character information sent from said second communicating module, and the position information of the target character when the image is captured sent from said third communicating module, and collecting the image in which the target character is caught.

56. A recording medium which stores a program for a computer for storing images, in which a person as a target character is caught, to accumulate into an image database for effectively offering an image in which the target character is caught, said program comprising:

a first communicating module, which operates the computer to communicate with a character information database storing

character information for identifying a person caught in an image as the target character;

a second communicating module, which operates the computer to communicate with a character positioning device obtaining position information of the target character;

an image screening module, which operates the computer to connect to said first communicating module and said second communicating module, to receive images in which the target character is caught sent with data of when and where the images are captured, and screen the images based on when and where each image is captured, the character information stored in the character information database sent by said first communicating module, and the position information of the target character at the time said each image is captured sent by said second communicating module, and

a third communicating module, which operates the computer to communicate with an image database, to write the image in which the target character is caught, screened by said image screening module, to the image database.

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